Industrial Waste Diversion Program

Final Reports #3

ALTERNATIVE VEHICLE FOR OCC RECOVERY

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INDUSTRIAL WASTE DIVERSION PROGRAM

FINAL REPORTS # 3

ALTERNATIVE VEHICLE FOR OCC RECOVERY

Report Prepared For:

Waste Management Branch
Ontario Ministry of the Environment

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ALTERNATIVE VEHICLE FOR OCC RECOVERY

Report Prepared For:

Waste Management Branch
Ontario Ministry of the Environment

In Consultation With:

Domtar Inc., Recycling Division

Report Prepared By:

Domtar Inc., Recycling Division

DISCLAIMER

This report is in partial fulfillment of conditions of a grant given to Domtar Inc. by the Ministry of the Environment under the Industrial Waste Diversion Program. The report was prepared by Domtar Inc. and documents results of work for which the Ministry of the Environment provided financial assistance.

The views and ideas expressed in this report are those of the authors and do not reflect necessarily the views and policies of the Ministry of the Environment, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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INTRODUCTION

The Ontario Government, Ministry of the Environment has continually supported new and innovative alternatives to recycling.

Under the non-refundable grants offered, Demonstration projects are considered for those pilot projects which advance the state-of-the-art in recycling within industrial sectors.

With many Ontario municipalities considering the mandatory recycling of Old Corrugated Containers, alternatives must first be offered to generators before such steps are taken.

The enclosed is our report, stating the results of our alternative vehicle for the recovery of Old Corrugated Containers (OCC) from small generators.

CONCLUSION

With the multi-lift vehicle we found we were able to pick up loose OCC from small generators in an efficient amount of time and in a cost effective way.

The results proved to us that the multi-lift vehicle was an effective method of collecting approximately 100 tons of OCC from industrial and commercial accounts within a logical transportation radius around the Domtar Shorncliffe plant or the Domtar Containerboard Mill (an approximate 50 klm radius was the tested cut-off point).

Two more vehicles have been purchased - one in February and one that was activated in late May. Our expansion program includes providing bins to be picked up weekly at medium sized accounts and/or industrial complexes or malls. We also plan to run trucks from our OCC recovery operation, due to begin in the summer, at the Dufferin Street transfer station. We will also be purchasing a vehicle to run the same type of collection system at our Domtar Recycling Curbside operation in Windsor, Ontario.

BACKGROUND

Canadian pulp and paper mills are actively increasing their reliance on recycled paper as a source of fibre. This has led to inadequate supplies of waste paper in Canada. Over 500,000 tonnes of waste paper were imported to Canada from the United States. Of that total, 54% was old corrugated containers (OCC).

Domtar mills alone are the largest consumers of OCC waste in the Province of Ontario. Our mills collectively consume approximately 13,000 tons of OCC per month. This huge consumption ensures Domtar Recycling's commitment to recover all possible OCC from the waste stream.

Past Program

- Packer truck vehicle doing a milk run pick-up.

Advantages	Disadvantages
- self unload	- high capital costs ($100,000)
- compaction to increase load	- high maintenance costs (compaction runs down engine and transmission)
- ground level loading	- high fuel consumption (compacted uses up fuel)
	- extra time to run compactor

New Vehicle (for details see alternative concept)

Advantages	Disadvantages
- self unloads	- no compaction *
- ground level loading	
- lower capital costs (under $40,000.)	
- lower maintenance costs	
- lower fuel consumption	
- time savings	

* We concluded in this study that the lack of compaction did not hinder the amount of OCC collected. During the time that a packer would be compacting the alternate vehicle has moved onto its next call.

ALTERNATIVE CONCEPT

Domtar Recycling proposed to demonstrate an alternative concept for a corrugated recovery program based on introducing a new collection vehicle, the Multi-Lift Truck Roll-off system.

In our concept we felt that the new Multi-Lift vehicle would economically allow Domtar to become more time and cost efficient, thus being able to expand the present packer truck system for corrugated recovery.

The Multi-Lift truck can haul, dump and store material. The hook lift system provides efficient use of handling boxes and the one man in-cab operation allows for pick-ups from dock, angles or unlevel ground quickly and safely. One of the main features of this vehicle is the minimal maintenance costs.

CONCEPT PROCEDURES

Domtar's concept is to introduce and demonstrate the new Multi-Lift vehicle to pick up OCC from small industrial and commercial businesses in an area.

The project procedure was as follows:

a) Contact was made with industrial and commercial sites.

b) Volumes were examined at each location.

c) Each site was requested to break down (flatten) and stack their OCC awaiting pick-up.

d) Scheduled routings were arranged.

e) Material was collected loose in the new vehicle.

f) Depending on route area, material was delivered directly to the mill or to our processing plant.

SCOPE OF WORK

Selected industrial and commercial sites to implement the program.

- Chose industrial areas to develop a routing
- Located and contacted generators of OCC
- Estimate volumes from each account
- Arrange for each tenant to break down (flatten) and save OCC
- Set up a pick-up schedule
- Solve any operational problems if necessary
- Set up a monitoring system (see below)
- Expanded to other areas

Monitoring System

a) Examined weights from both mill and plant receiving reports

b) Transportation costs, time/pick-up, volumes in vehicle

c) Occupancy of industrial and commercial malls - keep up-to-date on new tenants

d) Operational costs vs volumes recovered

SCHEDULE AND STATUS REPORT

MONTHS #1 and #2 - SEPTEMBER - OCTOBER 1987

Due to late arrival of bulk material body our co-ordinator worked half time for these months gathering interest and commitments from small industrial generators in the areas located on Map #1 and #2.

MONTH #3 - NOVEMBER 1987

The truck was now on the road, therefore, our co-ordinator worked full time on setting up accounts. We also had two 'Blitz' days where four other reps, as well as our co-ordinator, went door to door canvassing for old corrugated containers. (The prize for the most signed was a dinner for two.) The areas covered are located on Map #3 and #4.

MONTHS #4 and #5 - DECEMBER 1987 - JANUARY 1988

Our co-ordinator continued his efforts on gathering more accounts, but also had the time-consuming problem of keeping the accounts that had started still interested. We feel that this could have been due to shut-downs for the holidays and just an overall busy season. The areas covered are located on Map #3 and #4.

MONTH #6 - FEBRUARY 1988

Our Co-ordinator worked full time on gathering accounts. The areas covered are located on Map #5 and #6.

A second vehicle was purchased and five separate bins were also ordered and placed at accounts with a significant weekly volume.

ON-GOING MONTHS - MARCH 1988 TO PRESENT

A third vehicle has been purchased and activated. An assistant to our co-ordinator has been hired to handle calls and co-ordinate pick-ups. A fourth vehicle is beng purchased for our recycling program in Windsor, Ontario.

ECONOMICS

Capital Costs

	Packer Truck Actual	vs	Multi-Lift Proposed	Multi-Lift Actual
Capital	$110,000.		$40,000.	* $39,000.
Costs/Month				
Depreciation	1,800		600	600
Labour	2,400		2,400	2,400
Fuel	800		600	350
Maintenance	1,000		400	Ø
	$ 6,000/mo.		$ 4,000/mo.	$ 3,350
Recovery Rate	100 tons		100 tons	100 (May)
∴ Cost/ton	$ 60.		$ 40.	$ 33.50
Average Revenue	$ 40.		$ 40.	$ 40.
(Loose scale survey IKO, Belkin, Domtar)	$ (20.)		Ø	$ 6.50

* Capital costs for the Multi-Lift vehicle comprised of the following:

Truck	-	$20,812.00
Multi-Lift (lock lift) System	-	11,600.00
Special Steel Box	-	2,653.79
Installation	-	3,800.00
Total	-	$38,865.79

TOTALS

No. of Accounts (as of February 1988)	No. of Pick-Ups			
Regular	November	December	January	February
Truck #1 - 40	165	106	122	120
Truck #2 - 30				90
Occasional				
15	12	11	13	
Bin Accounts				
5				20

- An average of 10 calls/day/truck

- Approximately 1/2 ton/call/truck

- ∴ An average of 5 tons/day/truck

  For a total of 100 tons/month/truck

- The tonnages collected by the second vehicle were slightly higher due to the 20 pick-ups at accounts supplied with bins meant an average of 1.5 tons/pick-up.

- ~~There is no readable correlation between the type of account and the amount of corrugated available.~~ The bulk of pick-ups are made from wholesale import companies. Other major contributors are retail furniture stores,other retail stores, i.e., Consumers Distributing and light industrial or fabricating manufacturers.

DOMTAR -SHAWINIGAN

DRIVERS TIME SHEET

DISPATCH 232-8803
JACK MORE

DATE June 2 1988

NAME Joe Tremble

I WORKED FROM 7:30 M. TO 6:15 P M.

MILEAGE P.M. 22060

MILEAGE A.M. 21758

TOTAL MILES. 302

BOXES IN PLANT	CUSTOMERS NAME CIRCLE CHECK, SEE CHECK LIST OVER. INITIAL HERE IF	BOXES IN OUT OK/YARD	PICK UP	DEL	TRUCK NO.	TRLR #	ARRIVAL TIME	DEPART TIME	MILEAGE
	Domtar						7:00	7:55	
1000LBS	Canadian Recreation						8:50	9:05	Large Bin
400LBS	Dundas Joplin						9:20	9:30	
	Domtar Canadian Mill						9:45	10:00	
	IGA						10:40	10:45	
300LBS	Wayne Safety Shoe						10:55	11:05	
300LBS	Atlwoods						11:13	11:30	
200LBS	B+E Furniture						11:45	11:55	
800LBS	Bristol Falls						12:05	12:20	
	Domtar						12:45	1:05	
	Grathan						1:30	1:35	Drop Bin
2000LBS	Da Boer's						1:45	1:55	Pick up Bin
	Domtar						2:20	2:30	
	West End Service Centre						2:35	2:40	Fuel
500LBS	Fifth Ave Furniture						3:05	3:15	
	Domtar						3:40	3:50	
200LBS	Grathan						4:25	4:35	Pick-up Bin
	Domtar						5:05	5:15	
2000LBS	Messenger Hospital						5:30	5:45	
	Domtar						6:05	6:15	

LUNCH FROM — TO — TIRE CHECK A.M. OK

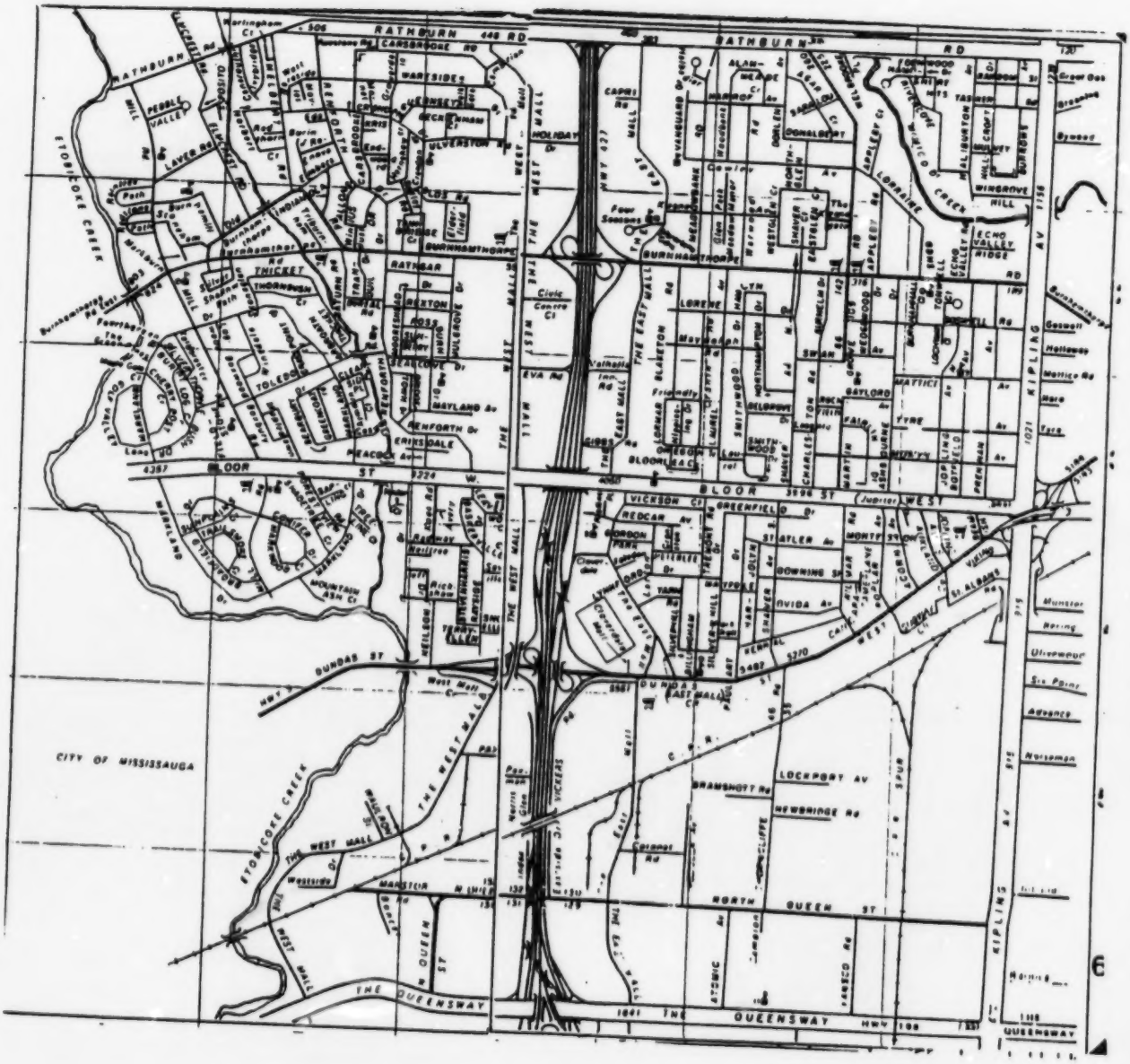
SUPPER FROM — TO — TIRE CHECK P.M. OK

HALF HOUR LUNCH UNLESS AUTHORIZED AT NOON. SAFTY BOOTS MUST BE WORN AT ALL TIMES.
TIME & WORK SHEETS MUST BE COMPLETED FULLY BY THE END OF YOUR SHIFT.

DOMTAR

DOMTAR
DOMTAR

DOMTAR
TOYOTA
DOMTAR


RATHBURN RD
BATHBURN RD
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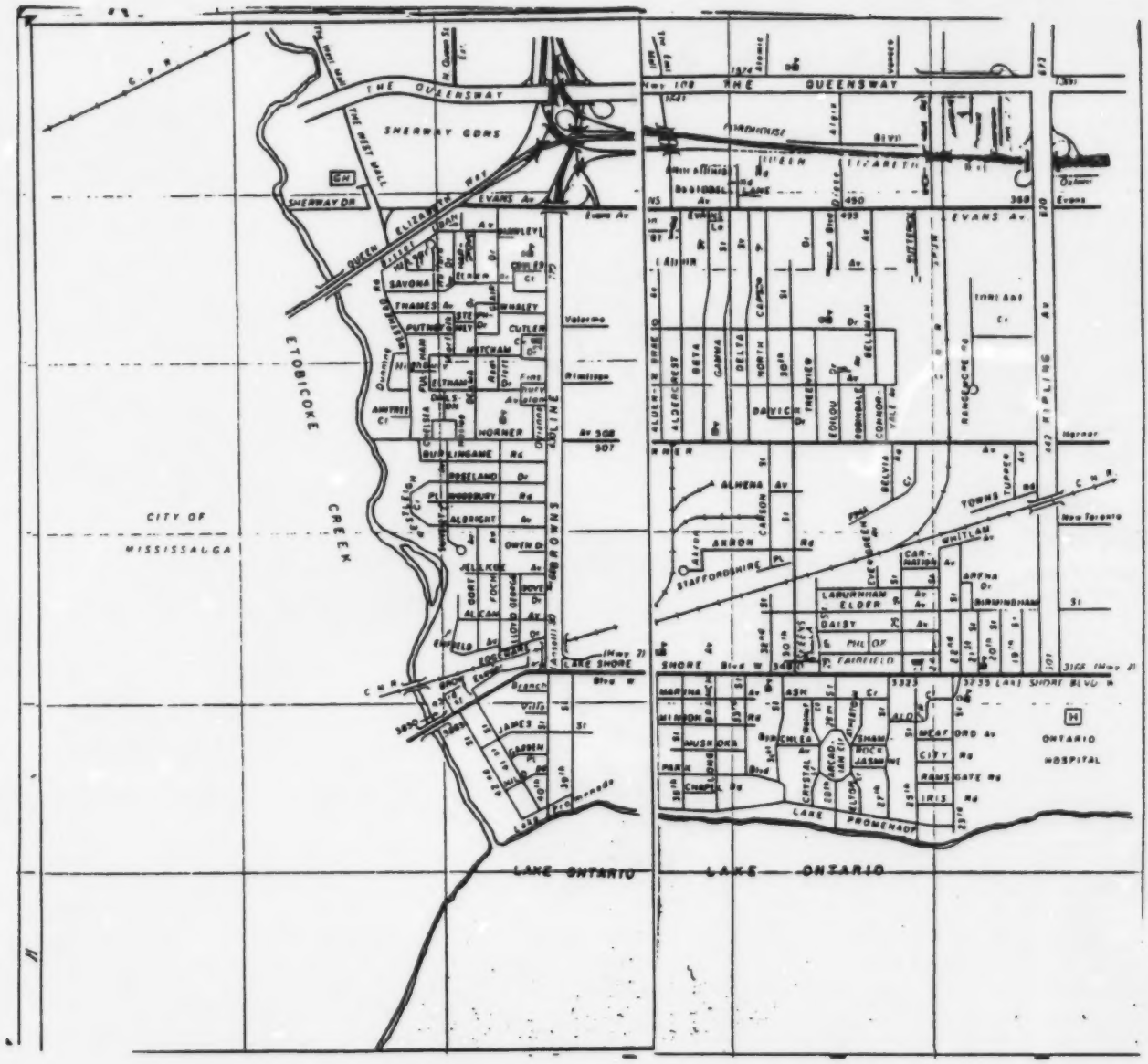
ETOBICOKE CREEK
THE WEST MALL
THE EAST MALL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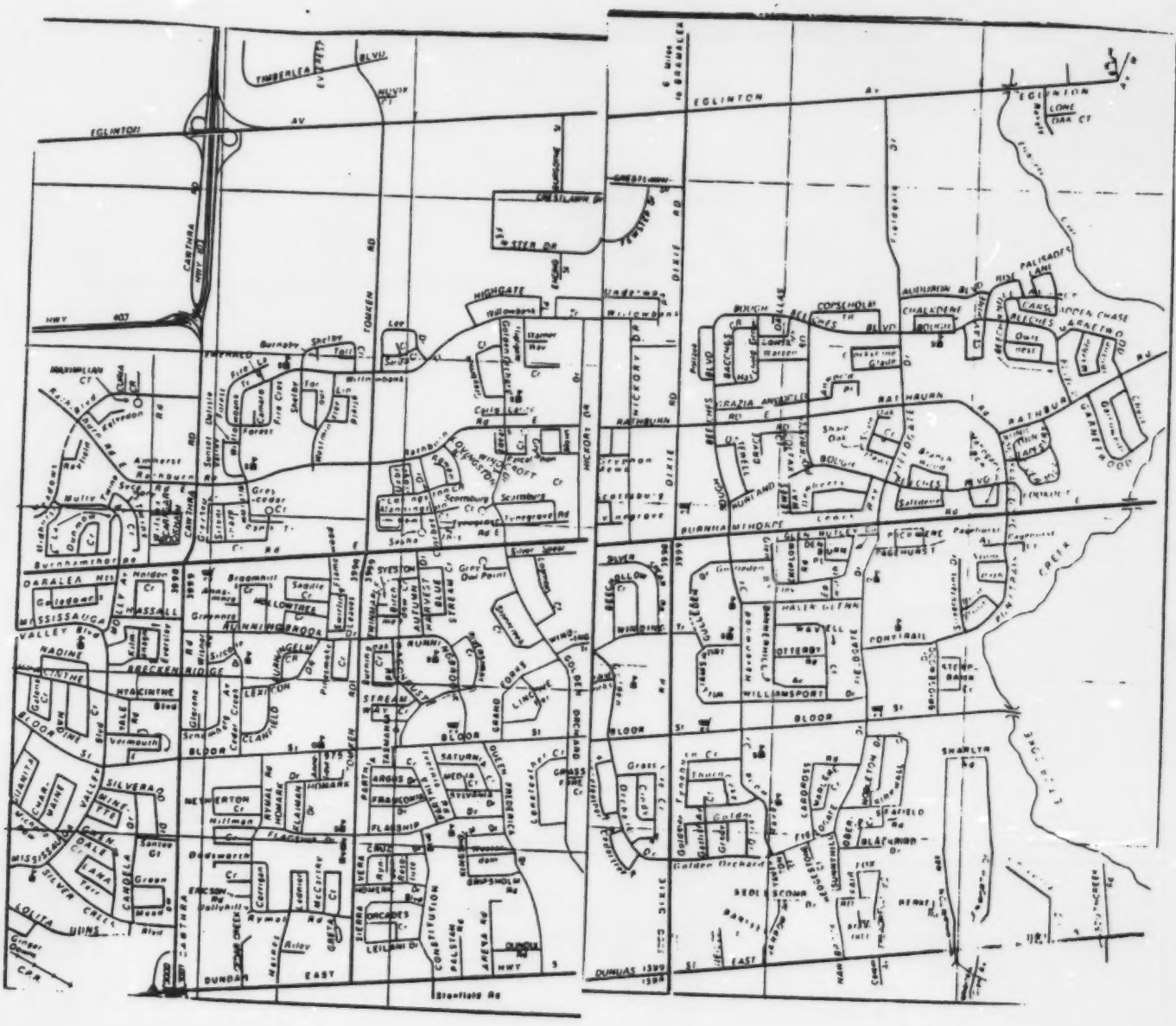
LAKE ONTARIO
ONTARIO HOSPITAL
LAKE PROMENADE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CAMPUS
TOMKEN RD
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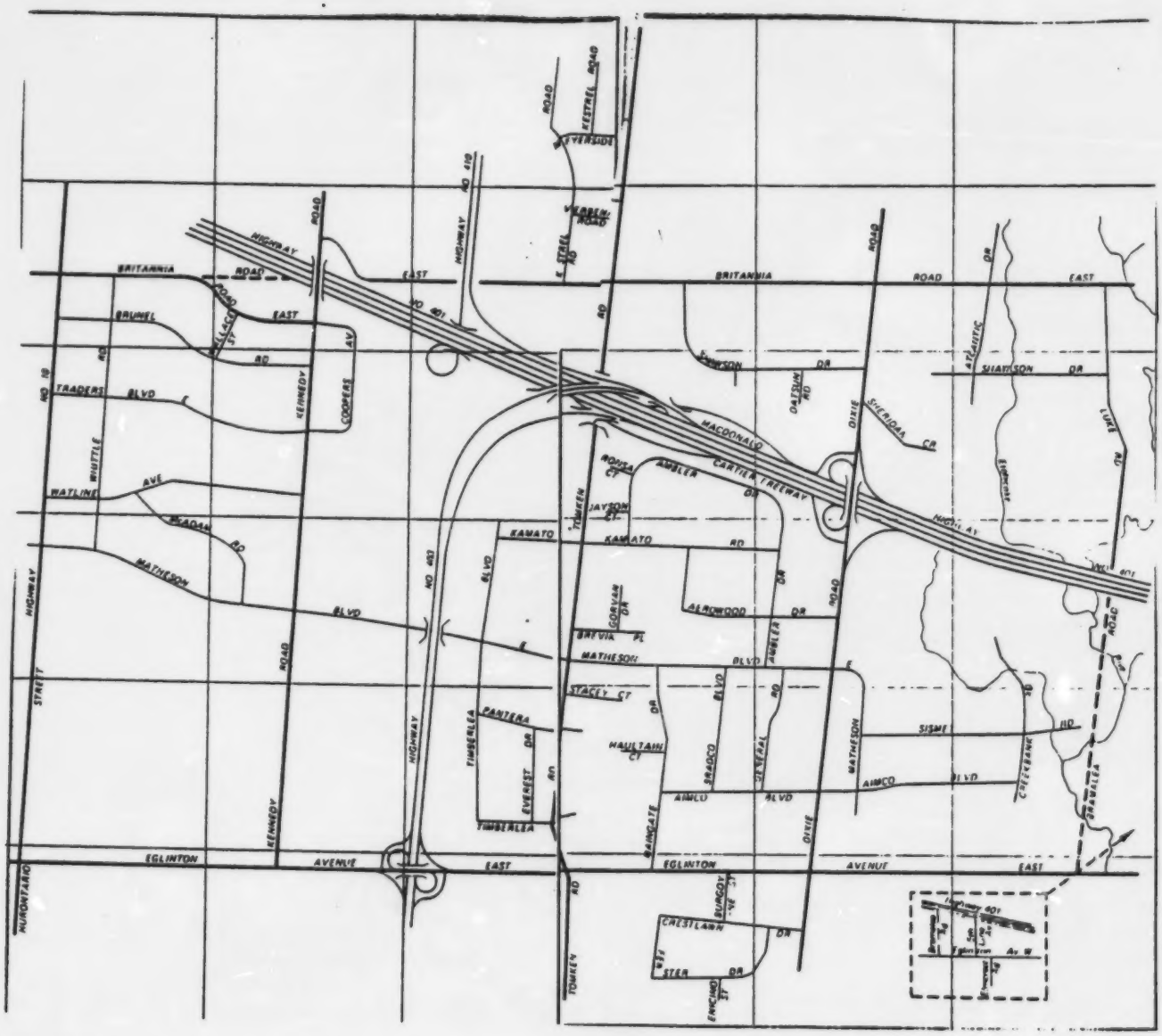
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KENNEDY ROAD
HURONTARIO STREET
HIGHWAY NO 10
HIGHWAY NO 410
HIGHWAY NO 427
HIGHWAY NO 403
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ATLANTIC DR
SHAWSON DR
OATRIM RD
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LUKE RD
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AMBLER DR
JAYSON CT
GORDAN DR
ARLINGWOOD DR
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STACEY CT
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TIMBERLEA DR
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CREDITBANK RD
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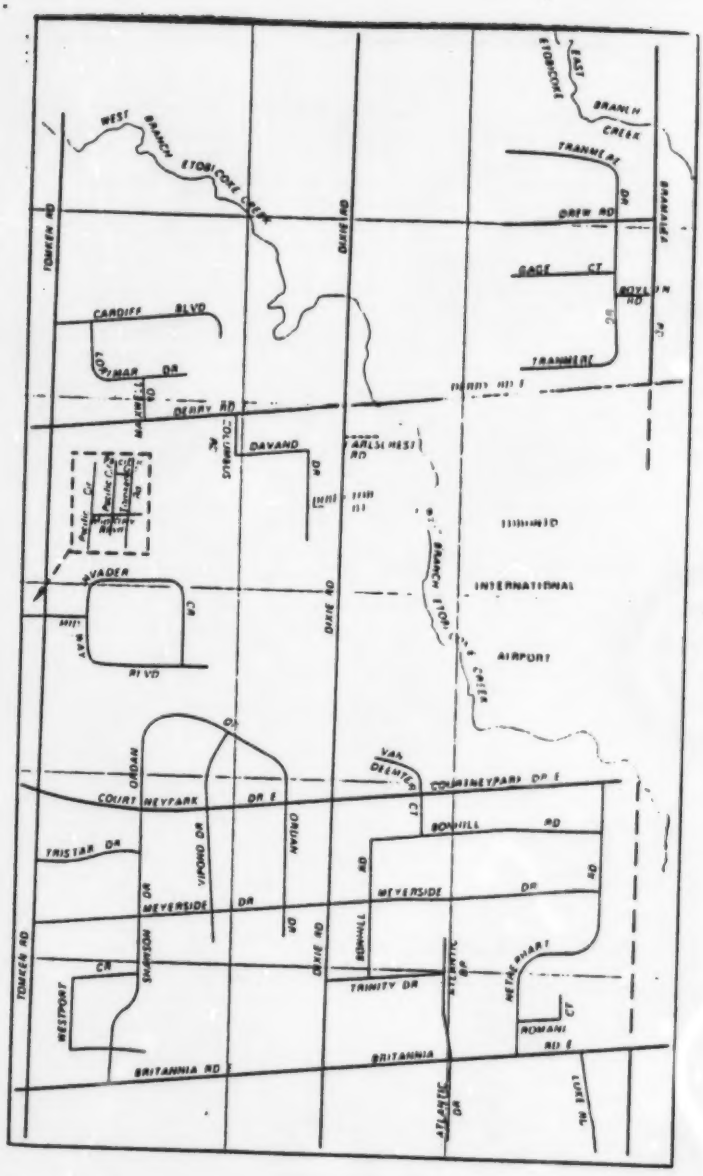
BAINGATE RD
BURGOYNE CT
CRESTLAWN DR
STEER DR
ENGLAND CT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DERRY RD
DAVAND DR
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EARLSWOOD RD
INTERNATIONAL
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AVADER
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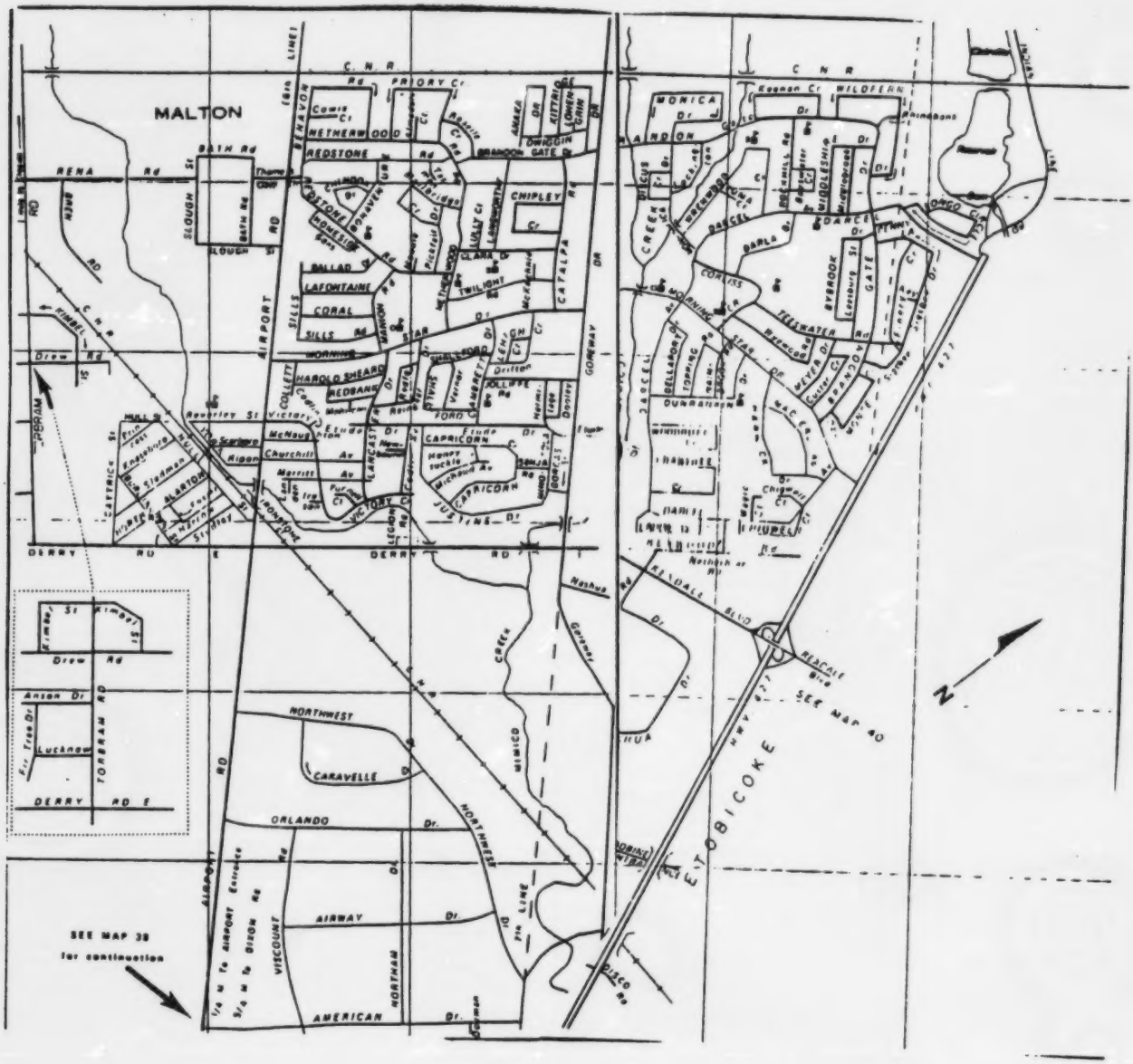
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AIRPORT RD
CATALPA
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LEGION RD
COLLETT
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Anson Dr
Lucknow
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NORTHWEST
CARAVELLE
ORLANDO Dr.
AIRWAY Dr.
AMERICAN Dr.
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SEE MAP 40
HWY 427
ETOBICOKE
SEE MAP 38
for continuation
N